

What is claimed is:

1. A surveillance system which comprises:

a camera means for generating an image signal of a field of view;

an audial means for detecting the direction of a source of sound located in said field of view; relative to a location of said camera;

signal selecting means arranged in operable combination with said audial means and said camera means for selecting a portion of said image signal generated from an area containing said source of sound;

monitor coupled to said signal selecting means for presenting an image of said area containing said source of sound.

2. The surveillance system of claim 1 wherein said camera means comprises:

an unidirectional lens for forming an image of a panoramic field of view;

a CCD array operably arranged to receive said image and generate an image signal;

for transmittal to said monitor subject to control by said signal selecting means.

3. The surveillance system of claim 1 wherein said camera means comprises:

a unidirectional lens for forming an image of a panoramic field of view around said camera;

a CCD array arranged to receive said image and generate an image signal;

video memory means coupled to said CCD array for storing said image signal;

said video memory coupled to said signal selection means for transmitting said portion to said monitor.

4. The surveillance system of claim 1 wherein said camera means comprises:

an omnidirectional lens for forming an image of a 360° field of view;

a CCD array arranged to receive said image and generate an image signal
for transmittal to said monitor subject to control by said signal selecting means.

5. The surveillance system of claim 1 wherein said camera means comprises:

an omnidirectional lens for forming an image of a 360° field of view around said camera;

a CCD array arranged to receive said image and generate an image signal;

video memory means coupled to said CCD array for storing said image signal;

said video memory coupled to said signal selection means for transmitting said portion to said monitor.

6. The system of claim 5 wherein said audial array comprises:

a plurality of audial detectors circumferentially arranged around said omnidirectional lens:

said audial array having a central axis coincident with said omnidirectional lens;

circuit means for generating a signal representing an address in said video memory corresponding to said direction of said source of sound relative to said camera and applying image data stored at said address to said monitor for display of said area including said sound source;

7. The system of claim 6 wherein said circuit means comprises:

a plurality of AND gates, each gate connected to only one of said plurality of detectors, each detector coupled to only one of said AND gates to transmit an image signal from each said detector to one input terminal of said respective AND gate;

a first bus connected to an output terminal of each AND gate:

an inverter having an input terminal connected to said first bus;

a second bus connected to an output terminal of said inverter and to a second input terminal of said AND gate;

an address register connected in operable combination with said plurality of AND gates for storing in said address register an address of one of said AND gates in response to an image signal received from said AND gate;

said address expressed as an angular position of said detector in said array of detectors; and

said selection means connected to said register comprising means for selecting from said video memory said portion of said image signal generated from an area containing said source of sound and having an address stored in said register whereby a source of sound generates a sound wave that is incident on a nearest detector enabling said selection circuit to read said address of said detector.

8. The system of claim 6 wherein said circuit means comprises:

each detector of said array of detectors forming a pair of detectors with one member of said pair being positioned on a circumferential boundary oppositely from another member of said pair;

a plurality of difference circuits, difference circuit for each pair of detectors, one pair of detectors for each difference circuit;

a plurality of inverters, one inverter for each pair of detectors, one pair of detectors for each inverter;

a plurality of rectifiers, one rectifier for each pair of detectors, one pair of detectors for each rectifier;

an address register having a plurality of address input terminals, one address terminal for one difference circuit and one difference circuit for one address terminal;

one member of said pair of detectors connected to transmit an image signal to an input terminal of one of said plurality of inverters;

an output terminal of said inverter connected to an input terminal of one of said plurality of difference circuits;

another one of each pair of detectors connected to another input terminal of its difference circuit;

one of said plurality of rectifiers having an input terminal connected to an output terminal of said difference circuit;

each one of said rectifiers having an output terminal connected to one of said input

terminals of said address register.

said address register having an output terminal configured to emit an address signal responsive to a null signal from one of said rectifiers.

9.. The surveillance system of claim 5 wherein said omnidirectional audial detector comprises:

two detectors spaced a distance, D, from one another and having identical detection sensitivities;

said signal arriving at one of said detectors at one instant and arriving a period of time, P, later at said second detector;

means for measuring the period of time, P;

means for calculating a direction angle, \emptyset , being the angle which the direction from the audial detector to the source makes with the line connecting the two detectors using the relation:

$$\cos \emptyset = PC/D .$$

said display selection means applying the angle, \emptyset , to identify the address in visual memory of the visual data.

10. The surveillance system of claim 1 arranged to display a meeting of a group of conferees, which comprises:

a support for said camera means;

each conferee positionable at a respective one of a group of locations in said field of view of said camera means and each conferee being a source of sound from said respective location;

said audial means comprising a group of microphones, each positioned at a respective one of said locations and corresponding to said direction, being one of a group of directions of said conferees relative to said camera means;

said signal selecting means arranged in operable combination with said group of microphones and said camera means for selecting a portion of said image signal generated from one of said locations in response to sound generated at said location by one of said conferees at said location for presentation on said monitor.

11. The surveillance system of claim 1 arranged to display a meeting of a group of conferees, which comprises:

a support for said camera means;

each conferee positionable at a respective one of a group of locations in a field of view of said camera means and each conferee being a source of sound from said respective location;

said audial means comprising a group of microphones, each positioned at a respective one of said locations and corresponding to said direction, being one of a group of directions of said conferees relative to said camera means;

said signal selecting means arranged in operable combination with said group of microphones and said camera means for selecting a portion of said image signal generated from one of said locations for presentation on said monitor.

12. The surveillance system of claim 11 wherein said signal selecting means comprises:

a group of switches, one of said switches connecting a power means to one of said microphones respectively whereby said power means enables said microphone to convert an audio signal to an electrical signal for transmission to said signal selecting means and to select said portion of said image signal corresponding to said location where said microphone is located for presentation on said monitor when said respective switch is closed.

said group of switches accessible to an operator enabling said operator to select any one of

said sections for transmitting an image and sound

13. . The surveillance system of claim 10 wherein said camera means comprises:

an unidirectional lens for forming an image of a panoramic field of view;

a CCD array operably arranged to receive said image and generate an image signal;

for transmittal to said monitor subject to control by said signal selecting means.

14. The surveillance system of claim 10 wherein said support means comprises a table.

15.. The surveillance system of claim 11 wherein said support means comprises a table.

16. A method for monitoring a conference of a group of conferees which comprises:

positioning said group of conferees at respective locations around a video camera means having an omnidirectional field of view providing that each conferee is in said field of view of said camera means wherein said camera means has a video signal control for projecting onto a video monitor a selected section of said video signal corresponding to a selected one of said locations;

:positioning at each location one of a group of audio detectors;

arranging each said audio detector in operable combination with said camera means to activate said video signal control to project onto said video monitor an image of said location when one of said conferees located at said location generates a sound received by said respective audio detector.